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Iranian traditional medicine and Medicinal plants

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Abstract

Traditional medicine is a general word referring to both tradiotional medicine systems and to Native medicine. Iranian traditional medicine is a great history of medicine and pharmacy.to inform the importance of Iranian traditional medicine we may state great evidences such as: Makhzan-ol-advie by Aghili (18th century, Tehran University of Medical Science Press), canon of medicine by Avicenna (10th and 11th centuries, Beirut publication) and Al-shamel by Gharashi (13th century, Caltural foundation Publication) etc. this valuable books and manuscripts refers us the great position of research,science and expertise in the Iranian traditional medicine.medicinal plants so far have been more noticed due to their desirable therapeutic properties and also the lesser rate of adverse effects. The importance of medicinal plants is highlighted in traditional medicine too. despite all evaluations on the herbal plants and their pharmacologic effects more investigations is needed to inform the world about this valuable topic of micine and pharmacy. The importance of iranian traditional medicine and herbal plants made us to make an interview on these pure and precious fields of medicine.

Keywords: Medicinal plants; Iranian traditional medicine; Herbal medicine

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Introduction

World health organization (WHO) expressed traditional medicine as a general word referring to both tradiotional medicine systems and to Native medicine for instance traditional Chinese medicine, Indian Ayurveda, and Arabic-Unani medicine [1,2]. based on many literatures people in east region countries including iran had been using plants to cure various diseases from past decades.in Iranian traditional medicine a significant usage of medicinal herbs was promoted for their various desirable properties [3,4]. based on many evidences ancient Persian people were pioneers in the fields of using medicinal herbs for medical purposes. published documents express great position of Iranian traditional medicine for instance before foundation of the

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two prominent medical schools of ancient Greece through the 6th century BC, in Asia Minor at Cnidos and on the adjacent of Aegean island of Cos, practicing the medicine was common in Mesopotamia, India and Iran.like the ancient people who were interested in using medicinal plants nowadays many researches has been conducted in order to find more effective compounds possessing lesser side effects in comparison to chemical drugs.the remarkable side effect and also less effectiveness is the obvious Characteristic of many drugs used in various diseases for ie: Alzheimer's disease [5]. these are only some documents expressing importance of medicinal plants in medicine. Briefly we can announce Iranian traditional medicine as a great school(*maktab*) with about a 1000 years old history that has been rooted in the endless lands of science and expertise of many great scientists and researchers by whom the human knowledge is promoted through many centuries all around the world [6]. to state the great position of Iranian traditional medicine in the history we should express famous ancient books and Manuscripts written from the 10th to 18th century AD in pharmacology and other medicinal fields such as: Makhzan-ol-advie by Aghili (18th century, Tehran University of Medical Science Press), canon of medicine by Avicenna (10th and 11th centuries, Beirut publication) and Al-shamel by Gharashi (13th century, Caltural foundation Publication) etc this valuable books and manuscripts refers us the great position of research,science and expertise in the Iranian traditional medicine [7]. some data obtained from ancient manuscripts made us to deal with the interesting fact that the word drug may be derived from the ancient Iranian word dārāv, meaning the stem of a plant, as the origin of medicinal herbs afterwards This word changed to dāruk in the Pahlavi language after it became droga in Latin, drogue in French, drug in English, and dāru in the present Persian language. Unfortunately despite Precious position of Iranian traditional medicine in herbal and traditional medicine it was neglected for long years nowadays valuable efforts is done to inform the world of medicine about this great and exquisite part of traditional medicine.

Material and Method

The manuscript is based on the data published in national and international literatures available about the Iranian traditional medicine, medicinal plants, chemical compositions and their importance. Scientific databases such as: PubMed, Science Direct, Scopus, Web of Science and Google Scholar were used. The search keywords were: medicinal plants, Iranian traditional medicine, pharmacologic properties and chemical composition. the therapeutic properties of medicinal plants also were explored based on in-vivo and in vitro experiments as well as clinical trials.

Medicinal plants

The great and valuable data published about medicinal plants used in Iranian traditional medicine with remarkable pharmacologic and therapeutic properties such as: antioxidant [8], Antidiabetic [9], anti-inflammation [10,11], analgesic [12], relief of toothache [13], anticancer [14], anti- migraine [15], healing of peptic ulcer [16], antibacterial [17] inform us about the great importance of this topic. Nowadays many side effects of chemical drugs have been revealed and this made many people to notice the medicinal plants.the side effects developed by chemical drugs even may show up at their right dose as well as in combination with other drugs,side effects also may be the result a predictable drug mechanism, additionally it may be because of 'off-target' pathways. side effects of drugs affect about 2 million patients in the United States every year, resulting in approximately 100,000 deaths. For instance, highly publicized cases of severe adverse effects made US Food and Drug Administration advisory panel to ban the popular pain relievers Percocet and Vicodin [18,19]. Regarding to this facts the importance of medicinal plants greatly increases. Iran possesses about 1.64 million km^2 areas located in the Middle East region with a bout of 33% cultivable lands, 60 million km^2 steppe, 14

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million km^2 pasture and 16 million km^2 desert lands. Out of 13 climates all around the world Iran has 11 climates. About 25-26 percent of Gross domestic product (GDP) in iran is from agriculture 17-30% of Iranian people are working in this field. Iran has about 7500-8000 plant species. the desirable conditions make iran one of the most suitable places for medicinal herbs cultivation [20]. the most cultivated and prominent plant growing in iran with desirable properties include: Lavender genus,Rosa Damascena, Thymbra spicata, Scrophularia striata and Cuminum cyminum [21]. summarization of all pharmacologic properties of medicinal plants may be an impossible work but as mentioned before recently conducted researches on medicinal plants in iran revealed their valuable pharmacologic properties for instance: Antioxidative [22], Antifungal [23], Antihyperlipidemic [24], Antinociceptive [25], Analgesic, Antipyretic Anti-inflammatory [23], Muscle relaxing [26], Anticonvulsant, Sedative, Antispasmodic [27], Neuroprotective, Anaesthetic [28], Diuretic [29], Antiallergic [30], Angioprotective [31], Hypoglycemic [32], Heart rate decreasing [33], Antiviral: HSV-1 [34], Anti-HIV-1 [35], Radioprotective [36], Antimycobacterial [37], Antimicrobial [38] these are just some Available data on pharmacologic and therapeutic properties of medicinal plants used in Iranian traditional medicine for more data comprehensive researches in addition to further investigations is needed. These precious properties may be partly due to the valuable compounds in various parts of these plants such as: flowers, fruits, stems, seeds, leaf, root, gums, aerial parts and bark. Past researches have declared the desirable compounds such as essential oils isolated from this plants with great pharmacologic properties. Recently researches expressed about 51 medicinal oils isolated from 31 plant species, by specific preparation methods, were identified. fruits, Flowers and leaves were most often parts used. Herbal oils traditionally have been administered by topical, nasal and oral routes for, musculoskeletal, neural and gastrointestinal disorders. Based on current researches, most of the mentioned medicinal plant species were used for their anti-inflammatory and analgesic properties [39]. these medicinal oils now are available in various markets of iran and are prepared based the ancient approaches of Iranian traditional medicine the clinical outcomes of these essential oils may development the future researches on medicinal plants to find more effective compounds with lesser side effects.

Chemical composition

In a study by Pourmorad et al the total phenol contents of Iranian medicinal plants varied from 24.1±1 to 289.5±5 mg/g in the extracts and Flavonoid contents were between 25.15±0.8 and 78.3±4.5 mg/g.these make Iranian medicinal herbs as a great resource of natural anti-cancer, antioxidant and anti-inflammation compounds [40,41]. the antiinflammtory effect of phenolic contents of Iranian herbal medicine is not fully understood but it may be partly due to inhibition of the of pro-inflammatory mediators production, modulation of eicosanoid synthesis, inhibition of activated immune cells, or inhibition of nitric oxide synthase and xyclooxygenase-2 via inhibition of nuclear factor (NF-κβ) [42-44]. the antioxidation effects of phenol contents make them as an indicator of antioxidant capacity of various compounds [45]. Assessment of all chemical compounds of Iranian medicinal herbs needs more comprehensive investigation However so far investigations conducted in order to find chemical composition of some Iranian herbs reveals some desirable essential oils such as: 1,8-cineole, p-cymene, α-pinene, β-pinene, virdiflorene . trans-pinocarveol , neo-isoverbenol, limonene terpinen-4-ol as well as α-phellandrene, aromadendrene, globulol, ledene, O-cymen, aromadendrene, α-phellandrene ,9-octadecenamide , β-myrcene, α-erpinene, p-cymene, β-phellandrene, *Cis*-ocimene , γ-terpinene, camphene, sabinene, cis-β-ocimene, trans-carveol, α-terpineol acetate, geranyl acetate, isoledene, isopulegol acetate, α-gurjunene, (-)-cis-carvyl acetate, β-panasinsene, β-gurjunene, alloaromadendrene, aromadendrene, α-guaiene, epiglobulol [46-51]. despite all these valuable efforts to reveal

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chemical composition of Iranian medicinal plants furthermore investigations is needed however this based on this documents we may introduce Iranian traditional herbs as a cheap source of desirable essential oils for commercial isolation of the compounds used in order to be used in pharmaceutical products and food products as well as insecticide compounds and such industries.

Conclusion

Iranian traditional medicine is much greater than to be announced in a manuscript it is a great history of medicine and therapeutic instruments. Ancient Persian people were pioneers in the fields of using medicinal herbs for medical purposes. Iranian traditional medicine is a great school(*maktab*) with about a 1000 years old history that has been rooted in the endless lands of science and expertise of many great scientists and researchers. Increasing rate of herbal therapeutics utilization may be partly due the various side effect of chemical drugs and partly due to their lesser side effects in addition to more effectiveness. Regarding to desirable condition of Iran lands it may be advised for medicinal plants to be cultivated in large amounts and processed as new drugs by pharmaceutical companies for their economically and medically beneficial properties. The desirable characteristic of the Iranian medicinal plants make them more suitable for various pharmaceutical processing procedures.so far many studies have elicited to obtain clinical properties of Iranian medicinal plants such as: antioxidant, Antidiabetic, anti-inflammation, analgesic, relief of toothache, anticancer, anti- migraine, healing of peptic ulcer, antibacterial etc. Iranian medicinal plants have been successfully tested in clinical trials too. informing the great importance of the Iranian medicinal plants as an alternative therapeutic strategy. nowadays medicinal plants are drawing attention all around the world specially in Iran being sold as commercial herb based drugs. some commercial drugs are available in Iran for treatment of migraine, gastrointestinal disorders, fatty liver etc. We predict more drugs based on herbal plants to be released in drug stores soon. Iranian medicinal plants surely should meet with the markets for all of their desirable characteristics despite all efforts to introduce medicinal plants through the world. more and more investigations is needed to express the issue as anticipated.

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